



US Army Corps  
of Engineers®  
Engineer Research and  
Development Center

## Fort Leonard Wood Culvert and Flagpole

Historic American Engineering Record

Chris J. Cochran and Adam Smith

April 2011





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Historic American Engineering Record

Chris J. Cochran and Adam Smith♣

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US Army Engineer Research and Development Center  
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Final Report

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Prepared for Fort Leonard Wood  
Directorate of Public Works Environmental Division  
Fort Leonard Wood, MO 65473

**Abstract:** The culvert at the intersection of North Dakota Avenue and Illinois Avenue is part of a historic district of stonework that was constructed by German Prisoners of War during World War II. The district was determined eligible for the National Register of Historic Places in 2006. Reconstruction of the intersection requires the demolition of the culvert stonework. This report documents the culvert in a similar style to the Historic American Engineering Record standard. In addition, this report also documents the flagpole constructed in front of the original Post Headquarters in 1941. This report satisfies Section 110 of the National Historic Preservation Act of 1966 as amended and will help Fort Leonard Wood in mitigation of these two historic resources.

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## Preface

This study was conducted for the US Garrison Fort Leonard Wood, Directorate of Public Works/Environmental Division/Natural Resources Branch, Fort Leonard Wood, MO, under Project No. 327643, "HABS Study for Bldg 401 Flagpole and Other Stonework." Funding was provided via Military Interdepartmental Purchase Request (MIPR) MIPR9LDATP3035, dated 8 September 2009. The Fort Leonard Wood technical monitor was Dr Richard Edging, Archeologist.

The work was performed by the Land and Heritage Conservation Branch (CN-C) of the Installations Division (CN), Construction Engineering Research Laboratory (CERL). The CERL Project Manager was Adam Smith. Dr. Christopher White is Chief, CN-C, and Dr. John Bandy is Chief, CN. The Deputy Director of CERL is Dr. Kirankumar V. Topudurti. The Director of CERL is Dr. Ilker R. Adiguzel.

CERL is an element of the US Army Engineer Research and Development Center (ERDC), US Army Corps of Engineers. The Commander and Executive Director of ERDC is COL Kevin J. Wilson, and the Director of ERDC is Dr. Jeffery P. Holland.

## Unit Conversion Factors

Multiply	By	To Obtain
feet	0.3048	meters
inches	0.0254	meters

# 1 Historic Context

## WWII\*

Planning and construction of Fort Leonard Wood (FLW), MO began in December 1940. Layout and construction documents were prepared by Alvord, Burdick, and Howson Architect Engineers of Chicago, IL. Although heavy rainfall in December and January slowed construction, the installation was occupied a mere 7 months later. The installation, containing 1600 mobilization style buildings, was designed for a maximum of 45,000 troops.

In the fall of 1942, a Prisoners of War (POW) camp was built in the southwest corner of the cantonment across from the airfield to house 3000 German and Italian prisoners, who left an enduring impact on the FLW landscape by building extensive stonework around the cantonment area. Between 1943 and 1945, over 250 German prisoners built drainage structures, retaining walls, sidewalks and parks, some of which still exists today (Harland Bartholomew & Associates 1987).<sup>†</sup>

After the war, the installation was put on standby in May 1947 and remained inactive until August 1950. During this time it was used only for summer National Guard training.

## The POW Camp Program in the United States‡

One of the consequences of war is the capture and imprisonment of enemy soldiers. By the end of World War II, approximately 455,000 German, Italian, and Japanese prisoners filled 500 internment camps across the United States. Approximately 15,000 of them spent the remaining war years in one of about 30 POW camps in Missouri (*The Fallen Foe* Undated, 3; Fiedler 2003, 1). This account details the POW internment process in Missouri and what they did during those years in the Midwest.

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\* Source: Tooker et al. 2007, pp 10-12; Smith et al. 2003.

† In 1998, the Cultural Resources Manager (CRM) and the Missouri State Historic Preservation Office (MSHPO) determined that all of the remaining stonework was eligible to the NRHP along with several important WWII era buildings. Stonework surrounds the following NRHP eligible buildings: the Post Headquarters, the Red Cross building, the Black Officers' Club, and Garlington House.

‡ Source: Smith et al. 2006, 9.

### **Origin, Development, and Administration\***

In previous wars, US forces had not retained large numbers of prisoners from opposing armies, so the influx of Italian, German, and Japanese prisoners entered a system that was only partially up and running. The Provost Marshal General's Office held responsibility for POW operations throughout the war, but the events of late 1941 and the rapid mobilization that followed left little time for focusing on the few prisoners expected on US soil. Events conspired to alter these expectations. Great Britain, which did not have room to house prisoners by the first half of 1942, requested in August 1942 that the United States relieve the shortage by accepting 50,000 POWs; 100,000 more moved shortly thereafter. The US military was already beginning to confine prisoners on their own, and the War Department decided in early 1942 to bring POWs back to the United States to save resources on the front lines. Moreover, applying the provisions of the Geneva Convention concerning feeding and housing of prisoners was much simpler if the military removed them to the United States (Fiedler 2003, 5–6).

The logical place for prisoners from a security standpoint was on existing US military bases, and the Provost Marshal General's Office placed a majority of POW camps at these sites. To supply the needed space, the Provost Marshal General's Office had camps built from scratch, mostly in the Midwest and Southern states. This placement met the requirement for camps to be isolated from major population centers and to be located away from strategic military or industrial sites. No matter where they were located, the camps generally followed a basic plan. Compounds designed to hold 1000 men were the basic building blocks. If camps needed to expand, they built more compounds. Encased in barbed wire fences, monitored around the clock by armed guards in watchtowers, and patrolled by dogs, the camps presented a very secure appearance (Fiedler 2003, 11–12).

Organization within the camps relied on hierarchy and rank, concepts familiar to all soldiers. The compounds each had an elected leader from the ranks of the POW companies making up each compound. The company leaders reported to the compound leaders who, in turn, reported to the highest-ranking prisoner, the POW spokesman. This individual provided the liaison between the prisoners and the camp administration to hand

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\* Source: Smith et al. 2006, 9-10.

down directives and forward up prisoner requests or complaints. The Geneva Convention authorized the spokesman to represent the prisoners to outside agencies (such as the Swiss Legation, the International Red Cross, and the YMCA) that periodically inspected the camps. This avenue of communication put the spokesman in indirect contact with the German foreign office and military high command through which they could affect the treatment of Allied prisoners by reporting on their own treatment. This influenced the treatment of the German prisoners, as it tended to reinforce the provisions of the Geneva Convention (Fiedler 2003, 14).

### **Cost and POW Labor to Offset\***

Providing shelter and sustenance for these involuntary guests on American soil came at a substantial monetary cost. Prisoner labor helped offset this expenditure. Initially, Axis POWs housed in the United States during WWII filled in for labor shortages on the military bases containing their housing compounds. They worked with the civilian laborers and despite initial fears, this arrangement worked well. There were fears at the highest levels that the Germans would plant saboteurs as POWs; President F. Roosevelt worried publicly and Federal Bureau of Investigation (FBI) Director J. E. Hoover warned this would be a "... danger to our internal security ... and the lives and safety of our citizens" (Smith et al. 2006, 36). In spite of these fears, WWII POWs in small groups first performed farm labor in the fall of 1942 during a period when there was a desperate need due to the severe labor shortage in this industry (Smith et al. 2006, 35–36).

Per the Geneva Convention and other international agreements regarding POWs, only lower ranking POW soldiers could be used for work; non-commissioned officers (NCOs) could not be compelled to perform labor duties. Wages paid were based on European wage rates that were lower than US wages. Because contractors paid the prevailing US wages for the POW workers, the Government made a profit (\$100 million in 1944 alone). These profits paid for housing, feeding, and medical care of the POWs and made the POW program self-supporting. Additionally, the War Department estimated that \$80 million was saved by the work done by the POWs on military posts. Government calculations were that the POWs performed a total of 19,567,719 man-days of work on military posts and 10,181,275 man-days of work for contract employers. Estimates developed

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\* Source: Smith et al. 2006, 10, 13.

by Army historians George Lewis and John Mewha placed government savings at more than \$131 million for the work done on military bases by POWs, and collections from contractors netted \$39 million (Smith et al. 2006, 37–41).

A typical workday for a POW was reveille at 0515 and assembly for work beginning at 0730 after breakfast and roll call. Prisoners worked until lunch from 1130 to 1300. Afternoon work was from 1300 to 1700 and then lights out at 2200 after supper. Prisoner NCOs served as supervisors or “straw bosses” so the men did not “promote trouble and foment unrest while in their barracks” (Smith et al. 2006, 38).

Because of acute labor shortages in the United States and travel times to the work sites and farms, these work units needed to be located in closer proximity to where they worked. There was initial hesitation in setting up branch camps due to the large number of GIs needed as guards. Initial estimates were that it would take 90 guards for 300 POWs and this was not possible in the early days of the war since the number of GIs available for this duty was limited (Smith et al. 2006, 39). After the initial experience with the low number of POWs trying to escape, it became obvious that this number was over-estimated and that the number of GIs needed for guard duty was less than 90. As a result, the Army established branch camps primarily for agricultural work across the country.

## **Development of the Fort Leonard Wood POW Camp**

### *Layout*

The Army placed the internment camp next to an abandoned Civilian Conservation Corps camp, opposite the FLW airfield across Iowa Avenue, and about 4 miles from the Post Headquarters. Built by the McCarthy Brothers Construction Company, the camp contained 87 acres and was located on the southwest corner of the cantonment (Edwards 1943, 1, 180–181; Fiedler 2003, 181). This isolated location offered enhanced security by keeping the prisoners separate from the post personnel yet close enough to allow easy access for transporting prisoners to provide labor for post activities.

The camp was constructed to provide three compounds, each capable of housing 1000 prisoners, with the fourth quarter left open for a shared recreation space. Construction of the camp followed WWII standard Thea-

ter of Operations designs for the buildings, the same designs as were built for American soldiers.

### *Facilities*

The compound's design contained 20 barracks, four latrines, four mess halls, one canteen, one administration barracks, one recreation room, one theater, one infirmary, and various recreation areas (Fiedler 2003, 181). Additional facilities were constructed for the camp as a whole: one dental clinic, four classrooms, one library, one soccer field, two handball courts, one art classroom, one watch repair shop, one book binder, and a former visitors' building modified to contain one stockade office and an office for the POW spokesman. The former stockade office became an infirmary (Edwards 1942, 2). Each compound had a barbershop operated by a prisoner with the necessary skills (*Italian Prisoners of War* 1943).

Housing for the prisoners was in standard 20 x 100 foot, single-story temporary barracks (Naglich et al. 2010) with the majority having tarpaper roofs, although asphalt shingles were used as well. The exterior walls were covered with Cellotex boards joined with tar. The open-bay 50 man barracks interior typically provided each prisoner with 40 cu ft of air space, a bunk, shared table and chair, storage in footlockers and wall lockers, and a section of the wall for the display of personal items. These usually took the form of pinups, family photos, religious icons, or patriotic items such as small swastikas that were allowed by the Geneva Convention (Fiedler 2003, 15). Outside, the rather drab appearance of the compound inspired the German prisoners to enhance the grounds with landscaping and gardening (with seeds and plants supplied by the camp commander), and also with such unique elements as a model railroad (Ensslin 1982, 2).

In addition to the buildings for prisoners, a variety of buildings was required for the Army personnel running and guarding the camp. These troops required guard barracks, administration buildings, warehouses, and utility areas, all constructed outside the fence toward the road. As the guard duties were somewhat monotonous for the soldiers, steps were taken to make their duty more pleasant through the provision of recreational facilities including a beverage garden, boxing ring, volley ball courts, a baseball diamond, a relocated chapel, and a recreation building constructed by the guard personnel (Edwards 1943, 7).

A double fence of barbed wire about 8-ft tall ringed all the POW buildings and areas with guard towers spaced strategically along the perimeter. The guard towers were of the standard octagonal design, and each contained a machine gun pointed midway along the fence between it and the next tower. Visibility was enhanced with searchlights, floodlights, and auxiliary lighting systems. Twenty “war dogs” were also assigned to the camp for use in night patrols, with four dogs on watch at one time (Edwards 1943, 2, 3).

### **Work on the Post\***

Within a few months of arrival at the camp, the German POWs had begun producing the high-quality stonework for which they were lauded and which would become a lasting reminder of their presence. A combination of elements led to this work, including a large quantity of appropriate stone, a climate and topography that led to a need for drainage structures of many sizes and kinds, and a ready supply of prisoner labor including experienced stonemasons. Starting with their own compounds, which were hastily engineered and constructed, they built “elaborate” drainage ditches laid out by two prisoners who were engineers (Edwards 1943, 4). They also created less utilitarian stonework including rock gardens and “extremely elaborate mosaics...which depict[ed] in minute detail their regimental insignia and other designs” (Fiedler 2003, 182). The stonework and rock gardens were all built from rock quarried by the prisoners. Period inspectors visiting the camp remarked on this work saying the prisoners “...built stone revetments usually 6-ft high and have constructed a concrete trough to the foot of these ditches” (Edwards 1943, 4).

The POW stonework was not confined to the prison camp, but was spread out across the installation where it was needed. Most of this labor went into utilitarian structures such as a stone dam and a boat landing at a water intake plant on the Big Piney River and drainage structures such as culverts and ditches.

There remains a large amount of stonework adorning the installation and some of its most significant buildings. There are currently over 493 different stoneworks scattered across FLW including culverts, steps, walkways, roads, walls, and chimneys. Beginning in 1943 and continuing through

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\* Source: Smith et al. 2006, 45-46.

1945, over 250 German prisoners were laboring with stone (Bartholomew & Associates 1987, 3).

Base records in 1944 indicate that 10 German POW stonemasons had been employed full time in working and laying sandstone walks and walls for a year or more, and an additional 240-250 prisoners were engaged in quarry and roadwork using sandstone and other stone. Thus, approximately one out of every 10 POWs was working at least part time on stone structures.

Many important WWII era buildings received stonework, including the Post Headquarters area, the Red Cross building, an Officer's Quarters, the Black Officers' Club, and Major General Garlington's quarters. Cemeteries and chapels also were stonework sites (Bartholomew & Associates 1987, 3-4).

## **Cold War Landscape\***

FLW was reactivated on 1 August 1950 to address growing conflict in Korea. Although no new buildings were built, the site needed extensive repairs, and roads and training areas needed to be rebuilt (Bartholomew & Associates 1992, 11). In March 1956, the 6<sup>th</sup> Armored Division was deactivated and the US Army Training Center Engineer was activated at FLW. As a result, substantial funds became available to replace the WWII temporary barracks. Construction of new permanent brick structures included major troop barracks, family housing, and support and recreational facilities.

The first permanent buildings constructed were Capehart family housing units. Between 1958 and 1961, 2829 new housing units were built at FLW under the Capehart legislation (Kuranda et al. 2003, A 5.1). Phase One of this massive effort was completed in 1960 and consisted of 1329 units. The housing on the east side of the post was generally for commissioned officers and was known as Delafield Village and Piney Hills. Housing for non-commissioned officers (NCOs), located on the northwest corner of the post, was called Leiber Heights, Palace Heights, Wildwood Village, Cedar Hills, and Rolling Heath Village. Phase Two built 700 units and was completed in 1962, and Phase Three, which added 800 units, was completed in 1963 (Bartholomew & Associates, 1992, 11).

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\* Source: Tooker et al. 2007, 12-16; Smith et al. 2007.

Construction of unaccompanied personnel housing (UPH) consisting of rolling pin barracks along with supporting buildings, classrooms, brigade headquarters, mess halls, chapels, and gymnasiums was begun in 1958 and lasted until 1968. Other permanent construction during the 1960s included community buildings such as a chapel and theater, motor pools, and a health center.

Also around this time, a large beautification effort was attempted. Two reports, a *Landscape Planting and Maintenance Plan* and a *Land Management Plan* were initially completed in February 1957; each document was revised several times until 1968. The goal of these plans was to improve the appearance of the post and create a pleasant environment to boost the morale of personnel. The design aimed to provide uniformity and economy of maintenance, and to permit continuity of development. It was noted that any existing plantings were placed intermittently without benefit of design or funding, much of which was planted by troops aiming to improve their area or building, resulting in a lack of consistency, uniformity, simplicity of design, or economy of maintenance (US Army Engineer District, Kansas City, MO 1968, 1, 9).

### **Present Day Landscape \***

By the end of 1989, only 600 of the 1000 WWII temporary buildings remained in the cantonment (Bartholomew & Associates 1992, 12). Today, only a few WWII temporary buildings remain scattered around the cantonment. Within the WWII Temporary Building Historic District, there are thirteen buildings that are extant today. However, the layout and land use and, for the most part, the roadways remain the same. The cantonment continues to grow as the Army Chemical and Military Police Schools were relocated to FLW in 1999-2000.

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\* Source: Tooker et al. 2007, 16-17.

## 2 Culvert

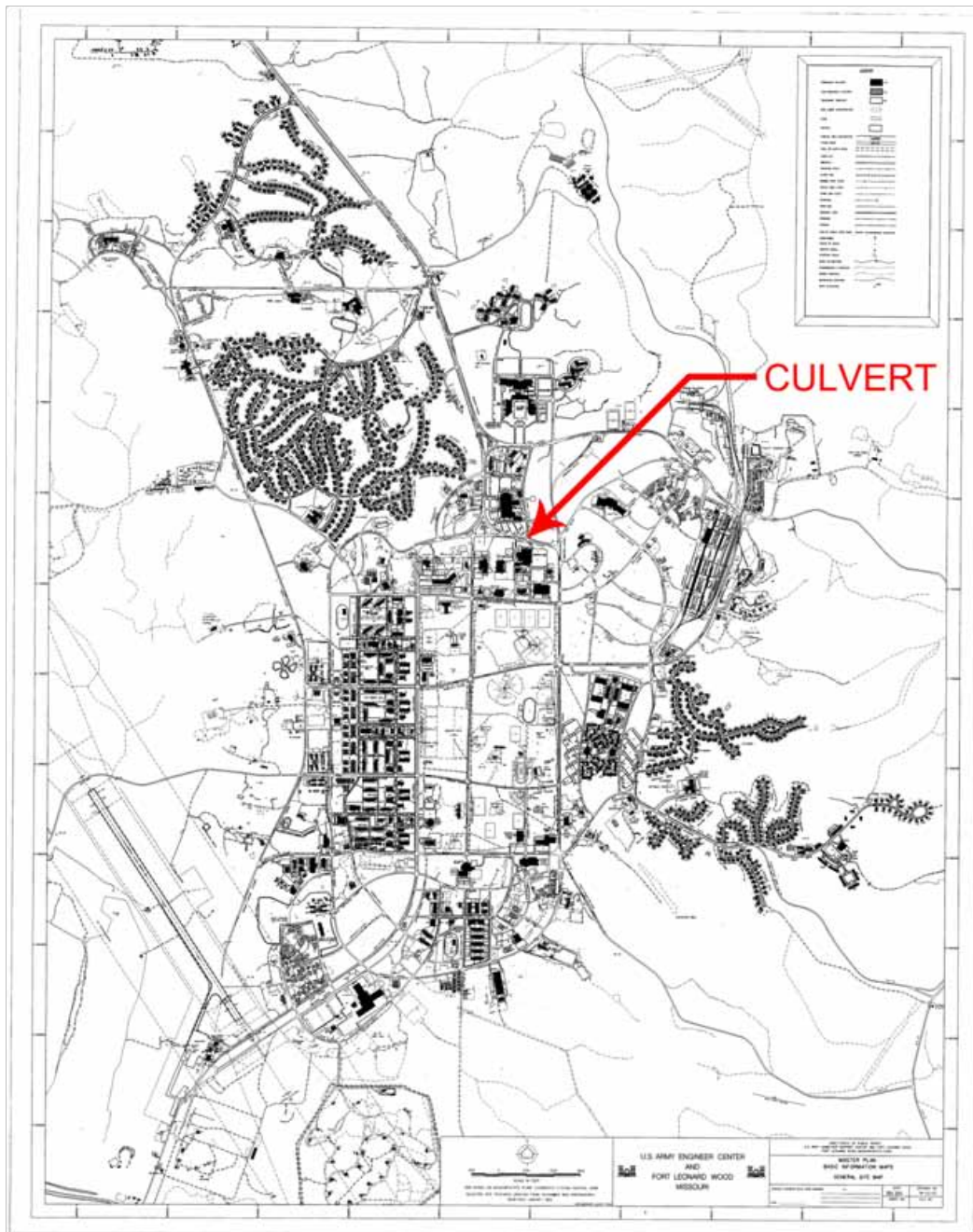


Figure 1. Culvert location on cantonment map.

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FORT LEONARD WOOD, CULVERT

## FORT LEONARD WOOD, CULVERT

FORT LEONARD WOOD, CULVERT  
United States Army Maneuver Support Center  
Intersection of North Dakota Avenue and Illinois Avenue  
Fort Leonard Wood  
Pulaski County  
Missouri

## PHOTOGRAPHS

## WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
MIDWEST REGIONAL OFFICE  
National Park Service  
US Department of the Interior  
601 Riverfront Drive  
Omaha, NE 68102

## FORT LEONARD WOOD, CULVERT

## HISTORIC AMERICAN ENGINEERING RECORD

## FORT LEONARD WOOD, CULVERT

<u>Location:</u>	North of North Dakota Avenue and to the East and West of Illinois Avenue, Fort Leonard Wood, Pulaski County, Missouri; US Geological Survey (USGS) Devils Elbow, Missouri, US Quadrangle, Universal Transverse Mercator Coordinates: Zone 17. 4179768. 578118
<u>Present Owner:</u>	Department of Defense Department of the Army Fort Leonard Wood
<u>Original Use:</u>	Army Engineer Training Center
<u>Present Use:</u>	US Army Engineer School (USAES), US Army Chemical School (USACS), US Army Military Police School (USAMPS)
<u>Significance:</u>	The German POW Stonework Historic District is a linear historic district (see Figure 2). After the integrity analysis of existing stonework, the researchers determined that the stonework with the best integrity and the closest proximity to each other was the stonework on the parade field constructed to control the flow of water. The stonework in the historic district consists of 99 stonework bridges, viaducts, culverts, weirs, sidewalks, and walls. There are 30 noncontributing elements to the German POW Stonework Historic District.

## FORT LEONARD WOOD, CULVERT

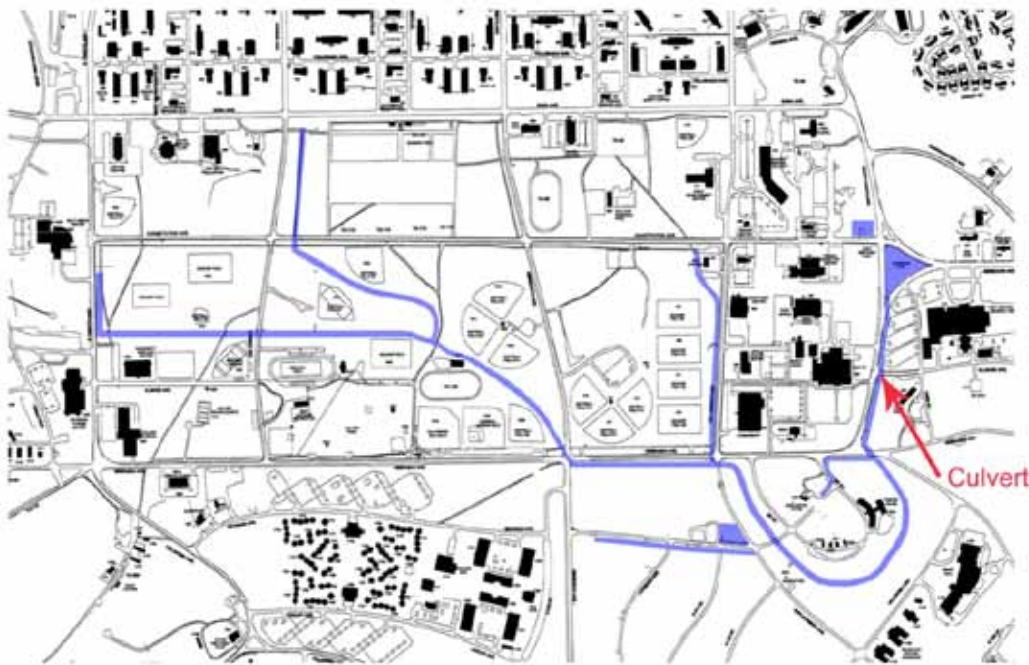


Figure 2. Location of Culvert in relation to German POW Stonework Historic District.

## PART I. HISTORICAL INFORMATION

### A. Physical History

1. Date of Erection: Ca. 1943.
2. Architect: Unknown.
4. Original and Subsequent Owners: Department of the Army.
5. Builder, Contractor, Suppliers: Unknown.
6. Original Plans and Construction: None could be located.
7. Alterations and Additions: Unknown.

### B. Historical Context

The culvert is located at the intersection of North Dakota and Illinois Avenues. This culvert is one of many constructed by the German POWs in the mid-1940s. Stonework was crafted by skilled masons and those whom they taught while at Fort Leonard Wood. Stonework was added throughout the cantonment in the form of culverts, walkways, steps, and retaining walls.

## FORT LEONARD WOOD, CULVERT



Figure 3. Intersection of North Dakota and Illinois Avenues, 1964.

## PART II. PHYSICAL DESCRIPTION

### A. Physical Description

Located between the Main Post Exchange and the Fort Leonard Wood Hospital, at the intersection of North Dakota Avenue and Illinois Avenue, the culvert served to bridge a drainage ditch at the end of Illinois Avenue near its intersection with North Dakota Avenue.

On the east side of Illinois Avenue, the culvert is simply a semi-circular corrugated steel tube with a flat bottom. The tube is approximately 36-in. tall and the flat base is approximately 64-in. across. The tube projects approximately 24 in. from the surface of the hillside. The culvert empties into an area of aged and worn concrete, then an area of different sized cobblestones and small boulders, and eventually into an area of dirt and grass. The south embankment consists of the same loose stone and the north embankment is entirely grass.

The culvert on the west side of Illinois Avenue is much different than on the east side. The bottom of the ditch has a longer stretch of concrete that is approximately 6-ft wide and is in good condition. The corrugated steel tube is the same size and shape as the east side, but is embedded into a stone wall that runs north-south. The wall rises approximately 27 in. above the top of the corrugated steel tube. The stone wall is approximately 88 in. across with the steel tube slightly off center toward the north and expands at the base in a bell shape. The wall is 12 in. thick on the north end and expands to 17-in. thick on the south end.

## FORT LEONARD WOOD, CULVERT

B. Condition of the Fabric

The steel tube is rusted, but appears to be in good condition. The stone wall on the west side of Illinois Avenue is in good condition with the exception of some cracked and missing mortar. The walls of the ditch are in poor condition with almost no mortar and missing stones.

C. Site

1. General Setting and Orientation: The culvert is located at the intersection of Illinois Avenue and North Dakota Avenue. It is directly north of the Main Post Exchange (No. 490) and southwest of the Thrift Shop (No. 204).

The stone portion of the culvert faces west.

2. Landscaping, Enclosures: There is no designed landscaping scheme in the area surrounding the culvert.

PART III. SOURCES OF INFORMATION

- A. Original Architectural Drawings: There are none.

- B. Historic Views: Fort Leonard Wood Cultural Resources.

- C. Interviews: None.

D. Bibliography

1. Primary and Unpublished Source: There are none.

2. Secondary and Published Source: There are none.

- E. Likely Sources Not Yet Investigated: None.

PART IV. PROJECT INFORMATION

Fort Leonard Wood Cultural Resources Program, Fort Leonard Wood, MO sponsored this project. The project was completed at the Land and Heritage Conservation Branch of the Construction Engineering Research Laboratory (CERL), part of the US Army Corps of Engineers, Engineer Research and Development Center (ERDC). The project historian was Chris Cochran (CERL). Chris Cochran, with assistance from Adam Smith (CERL), produced the architectural description and architectural sketch drawings sections of the report. Photographs contained in this report were taken by Adam Smith in November 2009. Documentation was coordinated with the Fort Leonard Wood Cultural Resources Program through archaeologist Dr. Richard Edging. The documentation was completed February 2010.

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FORT LEONARD WOOD, CULVERT

## FORT LEONARD WOOD, CULVERT

## HISTORIC AMERICAN ENGINEERING RECORD

## INDEX TO PHOTOGRAPHS

## FORT LEONARD WOOD, CULVERT

United States Army Maneuver Support Center

Intersection of North Dakota Avenue and Illinois Avenue

Fort Leonard Wood

Pulaski County

Missouri

Adam Smith, Photographer

NOVEMBER 2009

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- FIGURE 6 EAST ELEVATION OF CULVERT
- FIGURE 7 INSIDE OF CULVERT, EAST END
- FIGURE 8 VIEW EAST FROM MOUTH OF CULVERT ON EAST END
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FORT LEONARD WOOD, CULVERT

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- FIGURE 20    INSIDE WEST END OF CULVERT
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## FORT LEONARD WOOD, CULVERT

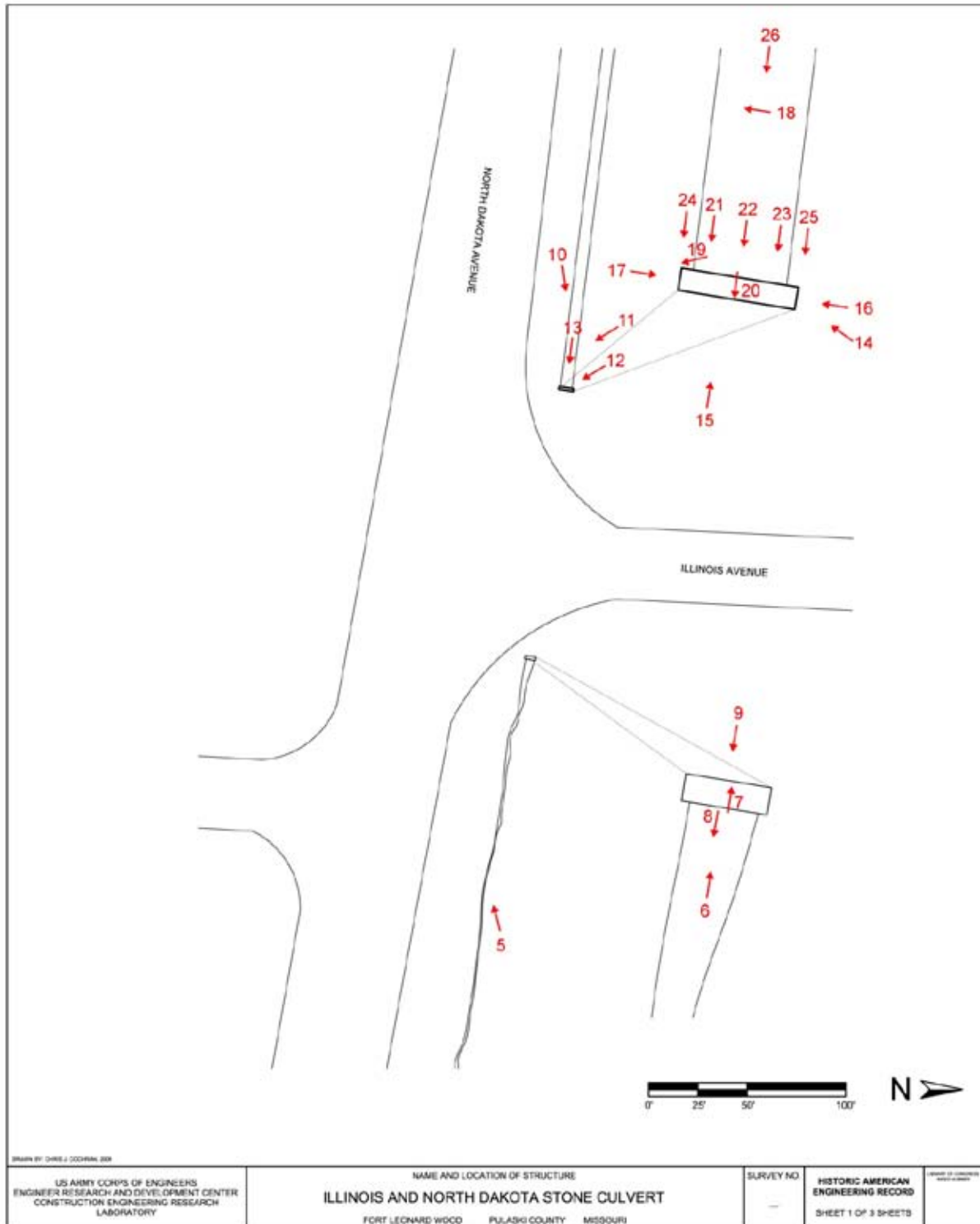


Figure 4. Culvert photograph locations.

## FORT LEONARD WOOD, CULVERT



Figure 5. Overall view of east side of culvert.



Figure 6. East elevation of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 7. Inside of culvert, east end.

## FORT LEONARD WOOD, CULVERT



Figure 8. View east from mouth of culvert on east end.

## FORT LEONARD WOOD, CULVERT



Figure 9. View east from top of culvert on east end.

## FORT LEONARD WOOD, CULVERT



Figure 10. View east from west side of culvert.



Figure 11. View southeast from northwest of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 12. Close-up of west end of culvert from the northwest.



Figure 13. West elevation of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 14. Close-up of drainage on north side of the west end of the culvert.



Figure 15. East elevation, west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 16. North elevation, west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 17. South elevation, west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 18. Overall elevation of south embankment, west side of culvert.

## FORT LEONARD WOOD, CULVERT

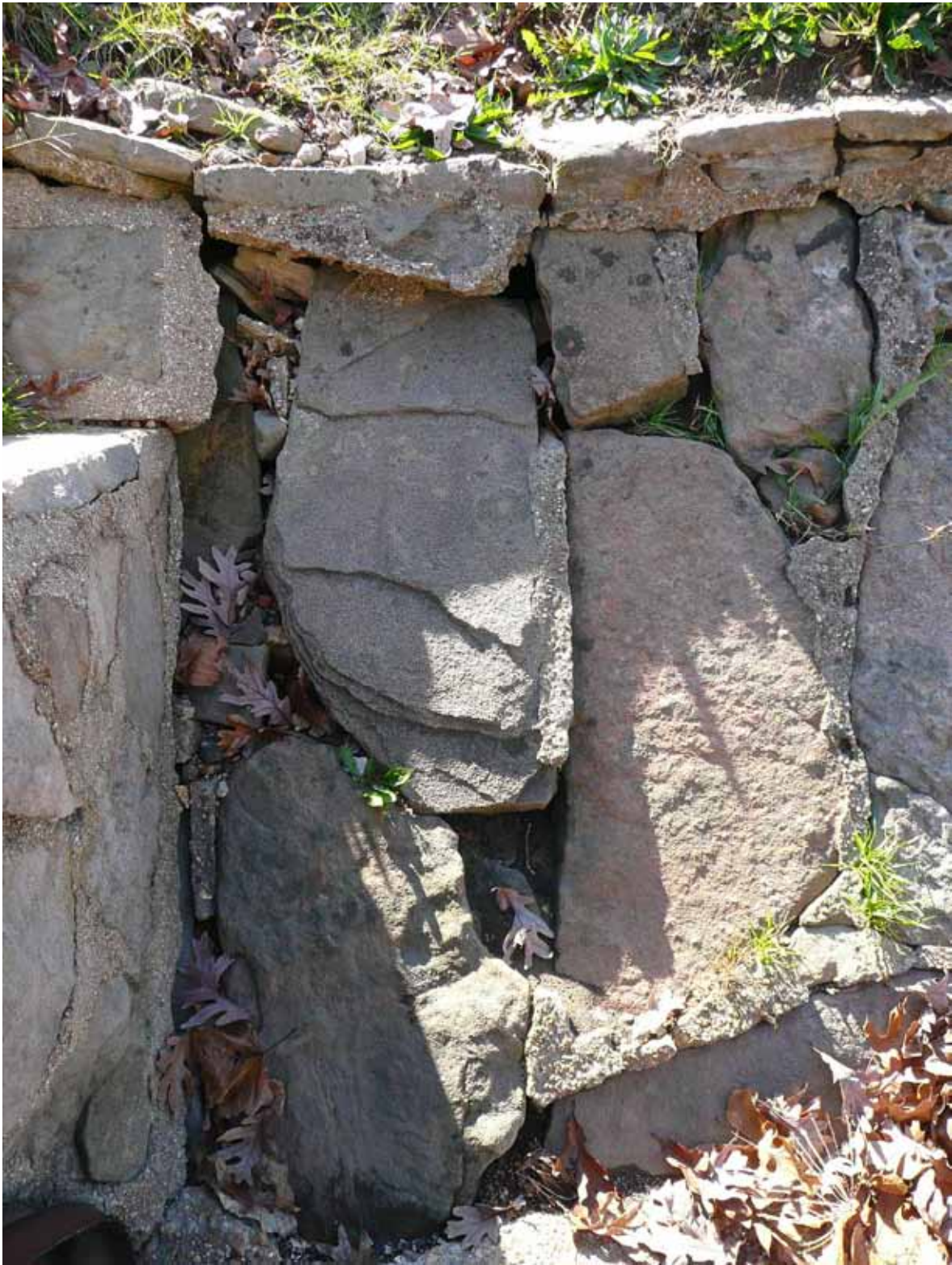


Figure 19. Detail of south embankment, west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 20. Inside west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 21. Detail, south side of west end of culvert.

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Figure 22. Detail, center of west end of culvert.



Figure 23. Detail, north side of west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 24. Detail, south base of wall on west end of culvert.

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Figure 25. Detail, north base of wall on west end of culvert.

## FORT LEONARD WOOD, CULVERT



Figure 26. Overall elevation, west end of culvert.

## FORT LEONARD WOOD, CULVERT

PART V. ERDC-CERL SKETCH PLANS AND ELEVATIONS

FIGURE 27 INTERSECTION OF ILLINOIS AVENUE AND NORTH  
DAKOTA AVENUE

FIGURE 28 CULVERT ELEVATIONS

FIGURE 29 EMBANKMENT ELEVATIONS ON WEST SIDE AND  
SECTION THROUGH ILLINOIS AVENUE

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FORT LEONARD WOOD, CULVERT

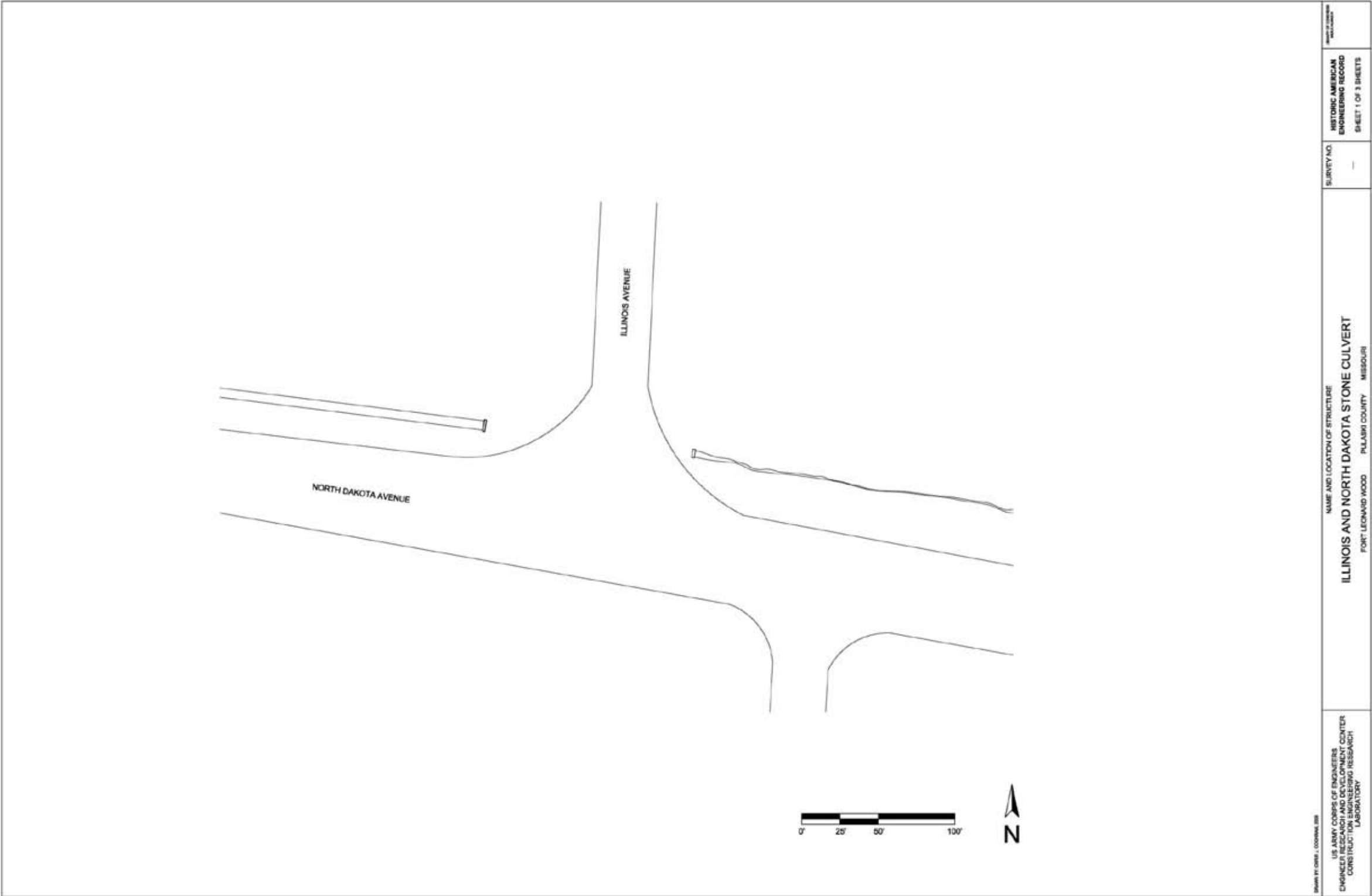


Figure 27. Intersection of Illinois Avenue and North Dakota Avenue.



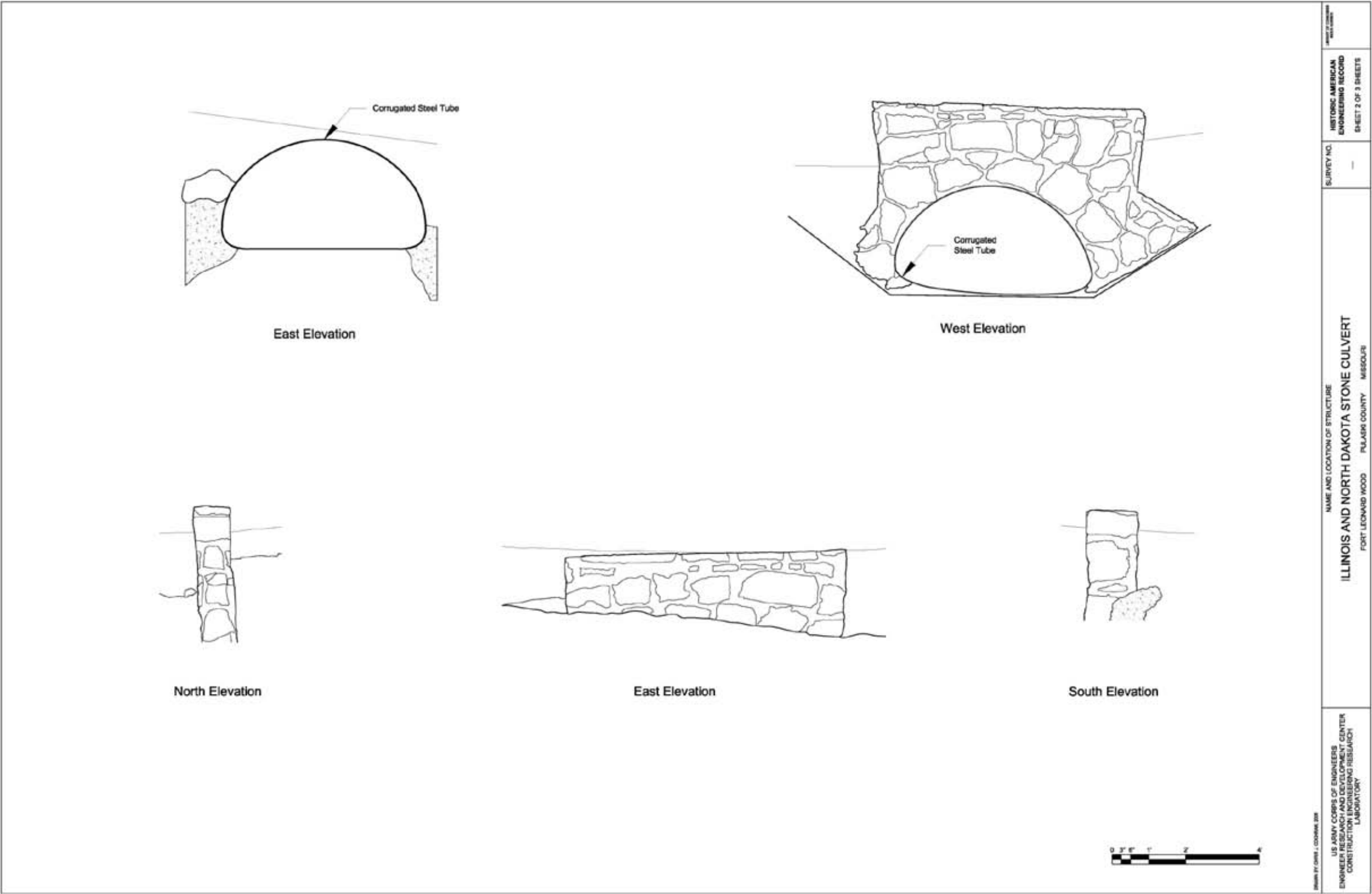


Figure 28. Culvert elevations.



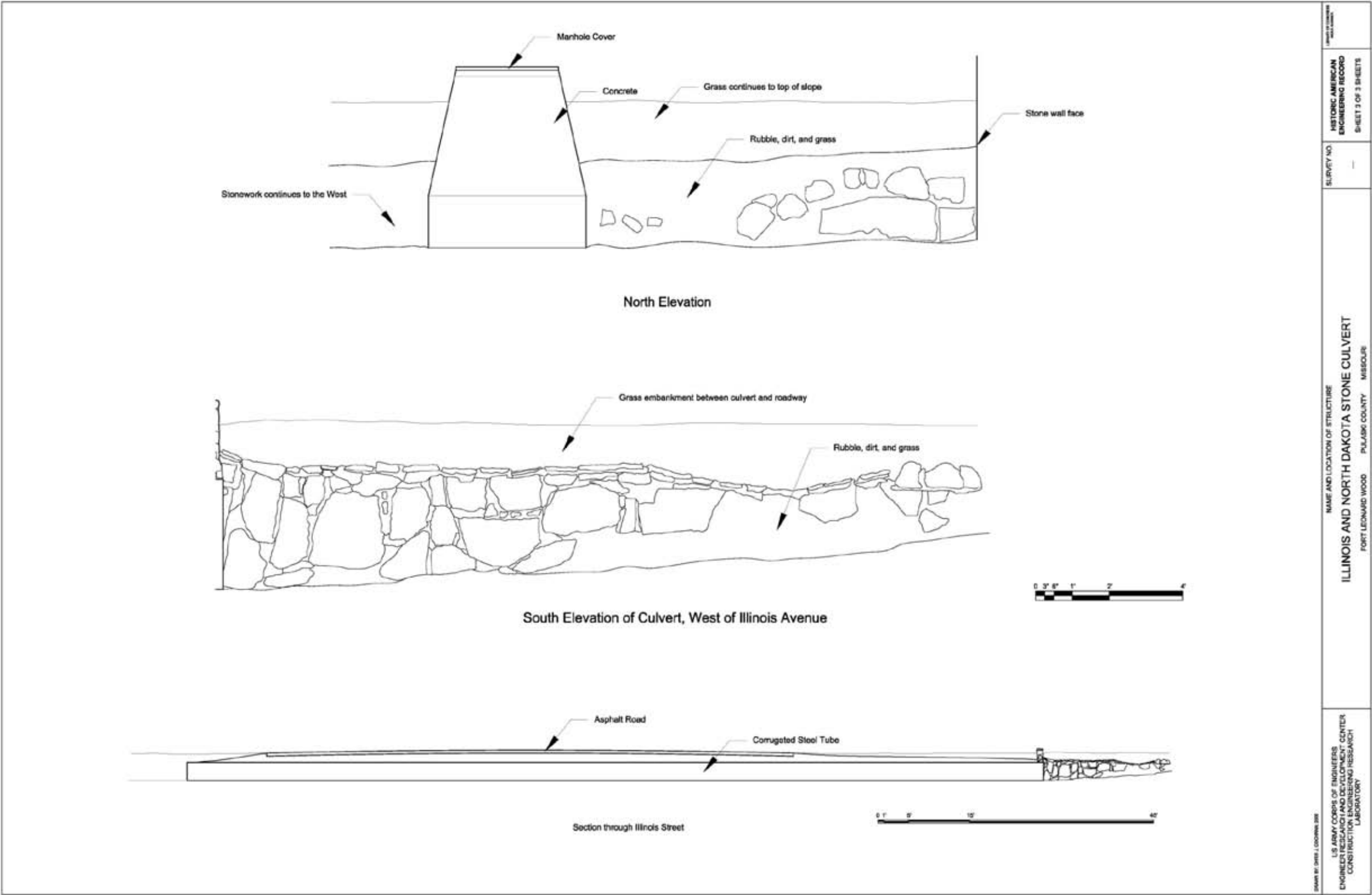


Figure 29. Embankment elevations on west side and section through Illinois Avenue.



### 3 Flagpole

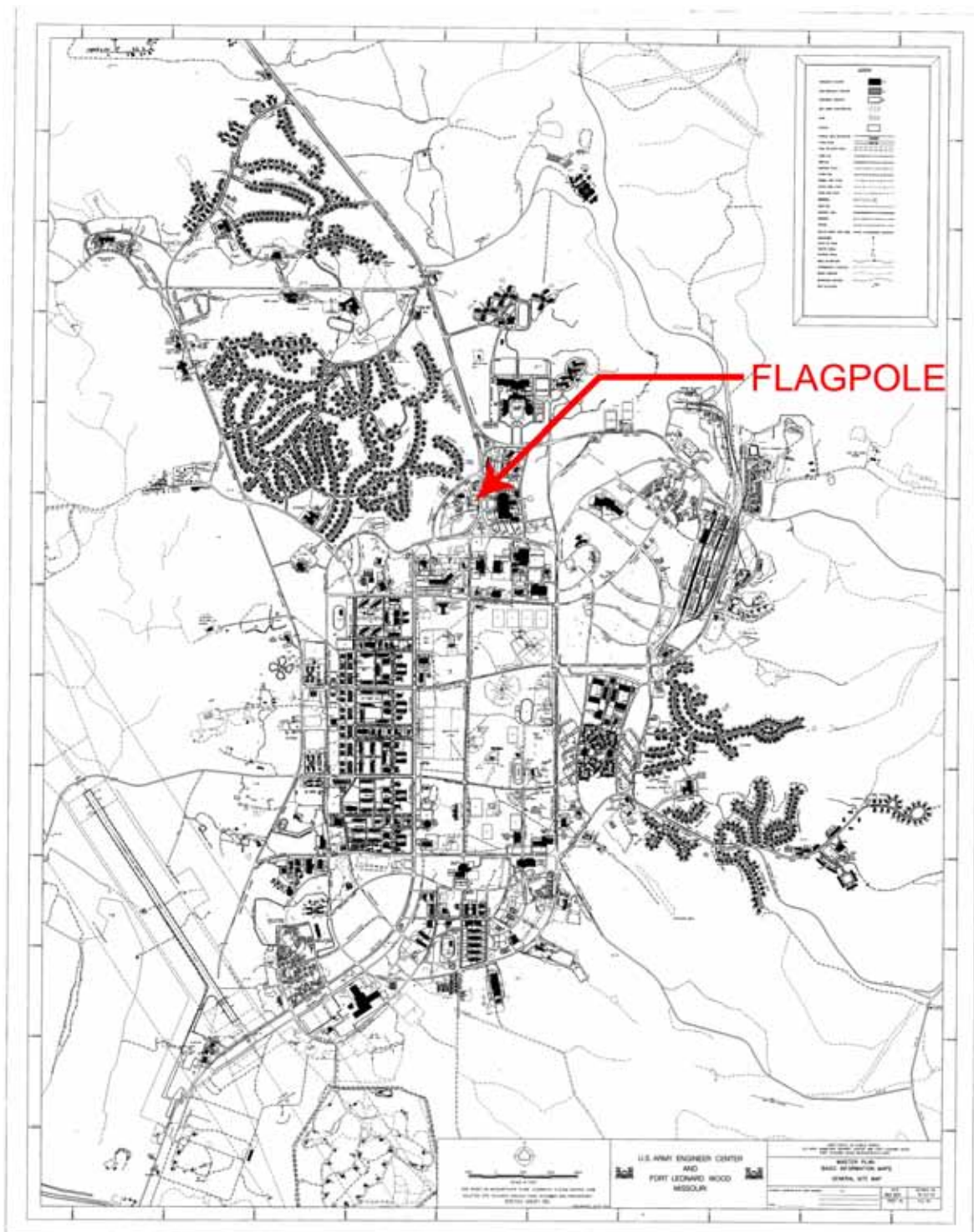


Figure 30. Flagpole location on cantonment map.

## FORT LEONARD WOOD, FLAGPOLE

FORT LEONARD WOOD, FLAGPOLE  
(Outside Building No. 401)  
United States Army Maneuver Support Center  
Missouri Avenue, north of North Dakota Avenue  
Fort Leonard Wood  
Pulaski County  
Missouri

## PHOTOGRAPHS

## WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
MIDWEST REGIONAL OFFICE  
National Park Service  
US Department of the Interior  
601 Riverfront Drive  
Omaha, NE 68102

## FORT LEONARD WOOD, FLAGPOLE

## HISTORIC AMERICAN ENGINEERING RECORD

## FORT LEONARD WOOD, FLAGPOLE

(Outside Building No. 401)

Location: West side of Missouri Avenue, north of North Dakota Avenue, Fort Leonard Wood, Pulaski County, Missouri  
USGS Devils Elbow, Missouri, United States Quadrangle,  
Universal Transverse Mercator Coordinates: Zone 17.  
4180028. 577798

Present Owner: Department of Defense  
Department of the Army  
Fort Leonard Wood

Original Use: Flagpole

Present Use: Flagpole

Significance: The formal, focal landscape (Tooker et al. 2007, 28) in front of the Old Post Headquarters and Red Cross buildings is a significant component of the historic WWII Mobilization cantonment. The buildings were laid out and grouped as to convey the impression of importance and that is still visible today. The POW stonework that surrounds the buildings is significant for its cultural heritage and for the mark it has left of the landscape. The prominent site, located near the entrance to FLW with significant views to the parade field, is the same today (Figure 31).

While the landscape in front of the Old Post Headquarters has seen many additions over the years, the formal lawn with the flagpole in the center has remained relatively unchanged (Figure 33). The stone walk around the flagpole is missing and replaced by concrete, and the landscaping is minimal both along the foundation of the building and around the lawn. The landscape around the Old Post Headquarters is less formal than it was historically; gone are the flanking specimen trees on either side of the entrances.

## FORT LEONARD WOOD, FLAGPOLE

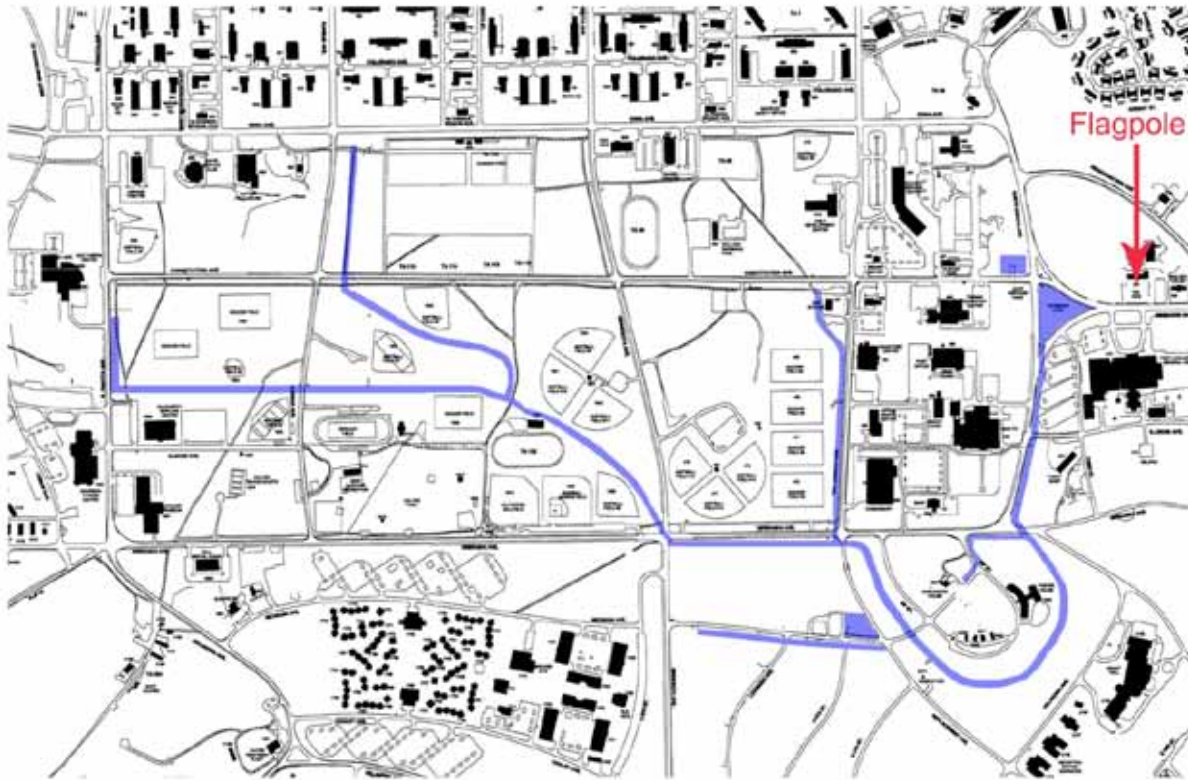


Figure 31. Location of flagpole in relation to German POW Stonework Historic District.

## PART I. HISTORICAL INFORMATION

### A. Physical History

1. Date of Erection: Ca. 1941.
2. Architect: N/A.
3. Original and Subsequent Owners: Department of the Army.
4. Builder, Contractor, Suppliers: Unknown.
5. Original Plans and Construction: None could be located.
6. Alterations and Additions: Unknown.

### B. Historical Context

The area where the flagpole exists was developed with the construction of the Old Post Headquarters and Red Cross buildings in 1941. The Old Post Headquarters provides a backdrop for the flagpole and the Red Cross buildings flank either side of it. This area is a high point in the cantonment area and was the main entrance to

## FORT LEONARD WOOD, FLAGPOLE

the Fort. This large courtyard area was plowed flat to create a formal atmosphere with the planting of grass and other planned vegetation. POW stonework was added to the site, including a stone embankment along Missouri Avenue, retaining walls, walkways, ditches, and steps. The location of the site on the high point also allows for views to the parade grounds that are still preserved today. The current landscape is less formal than it was originally, as there are no longer trees flanking the entrances.



Figure 32. Flagpole in front of Headquarters Building, 1964.

## PART II. PHYSICAL DESCRIPTION

Physical Description: Located in front of the Old Post Headquarters (Building No. 401) on Missouri Avenue, just north of North Dakota Avenue, the flagpole serves as a focal point (Tooker et al. 2007, 63) for the Old Post Headquarters and Red Cross buildings. It gives the landscape in that section an area of prominence and conveys that it is an important part of Fort Leonard Wood.

The flagpole is painted white and the paint remains in relatively good condition. A hand crank on the east side of the pole has also been painted white, but rust is beginning to show, especially at the edges.

### A. Condition of the Fabric:

The steel tube overall seems to be in good condition. The hand crank is somewhat worn and rusted, but seems to be in good condition as well.

### B. Site

1. General Setting and Orientation: The flagpole is located in front of the Old Post Headquarters (Building No. 401). The flagpole is in an open area surrounded by the Old Post Headquarters, Red Cross buildings, and Missouri Avenue. This area is across Missouri Avenue from General Leonard Wood Army Community Hospital.
2. Landscaping, Enclosures: Original stonework at the base of the flagpole that leads from the Old Post Headquarters to Missouri Avenue has been replaced by concrete. The straight pathway intersects a large circle at the base of the flagpole.

### PART III. SOURCES OF INFORMATION

- A. Original Architectural Drawings: There are none.
- B. Historic Views: Fort Leonard Wood Cultural Resources.
- C. Interviews: None.
- D. Bibliography
  - 1. Primary and Unpublished Source: There are none.
  - 2. Secondary and Published Source: There are none.
- E. Likely Sources Not Yet Investigated: None.

### PART IV. PROJECT INFORMATION

Fort Leonard Wood Cultural Resources Program, Fort Leonard Wood, MO sponsored this project. The project was completed at the Land and Heritage Conservation Branch of the Construction Engineering Research Laboratory (CERL), part of the US Army Corps of Engineers, Engineer Research and Development Center (ERDC). The project historian was Chris Cochran (CERL). Chris Cochran, with assistance from Adam Smith (CERL), produced the architectural description and architectural sketch drawings sections of the report. Photographs contained in this report were taken by Adam Smith in November 2009. Documentation was coordinated with the Fort Leonard Wood Cultural Resources Program through archaeologist Dr. Richard Edging. The documentation was completed February 2010.



## FORT LEONARD WOOD, FLAGPOLE

## HISTORIC AMERICAN ENGINEERING RECORD

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(Outside Building No. 401)  
United States Army Maneuver Support Center  
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Fort Leonard Wood  
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Missouri

Adam Smith, Photographer

NOVEMBER 2009

- FIGURE 34 FLAGPOLE FROM MISSOURI AVENUE
- FIGURE 35 TOP OF FLAGPOLE
- FIGURE 36 STEPS IN FRONT OF FLAGPOLE
- FIGURE 37 DETAIL OF FLAGPOLE HAND CRANK
- FIGURE 38 LOOKING NORTH FROM BASE OF FLAGPOLE
- FIGURE 39 VIEW OF HEADQUARTERS FROM THE NORTHEAST
- FIGURE 40 VIEW TOWARD GENERAL LEONARD WOOD ARMY  
COMMUNITY HOSPITAL
- FIGURE 41 CLOSE-UP OF FLAGPOLE BASE
- FIGURE 42 WEST ELEVATION OF OLD POST HEADQUARTERS WITH  
FLAGPOLE IN BACKGROUND



## FORT LEONARD WOOD, FLAGPOLE

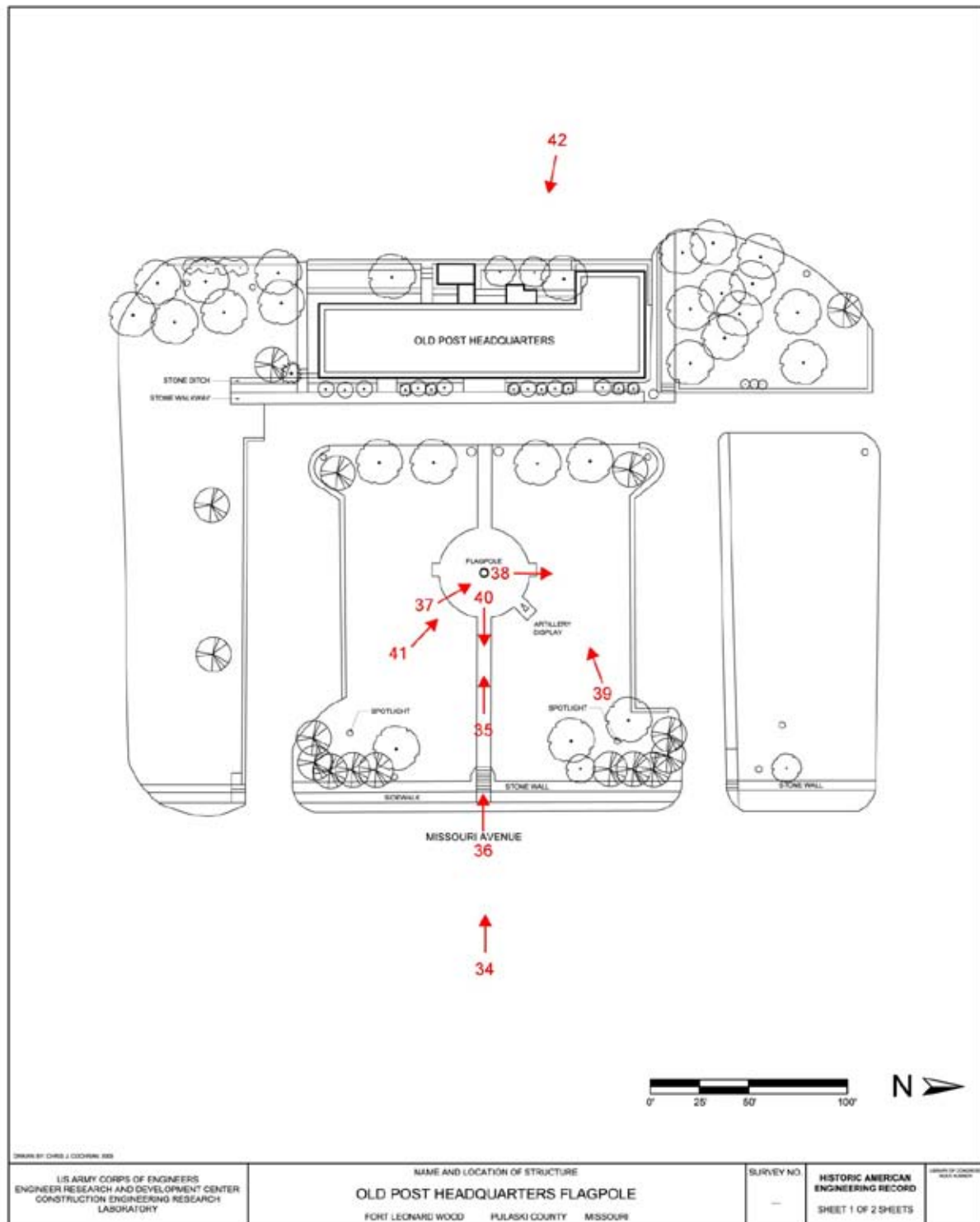


Figure 33. Flagpole photograph locations.

## FORT LEONARD WOOD, FLAGPOLE



Figure 34. Flagpole from Missouri Avenue.



Figure 35. Top of flagpole.

## FORT LEONARD WOOD, FLAGPOLE



Figure 36. Steps in front of flagpole.



Figure 37. Detail of flagpole hand crank.

## FORT LEONARD WOOD, FLAGPOLE



Figure 38. Looking north from base of flagpole.



Figure 39. View of Headquarters from the northeast.

## FORT LEONARD WOOD, FLAGPOLE



Figure 40. View east toward General Leonard Wood Army Community Hospital.



Figure 41. Close-up of flagpole base.

## FORT LEONARD WOOD, FLAGPOLE



Figure 42. West elevation of Old Post Headquarters with flagpole in background.



FORT LEONARD WOOD, FLAGPOLE

PART V. ERDC-CERL SKETCH PLANS AND ELEVATIONS

FIGURE 43 PLAN- FLAGPOLE IN FRONT OF OLD POST  
HEADQUARTERS

FIGURE 44 ELEVATION- FLAGPOLE IN FRONT OF OLD POST  
HEADQUARTERS



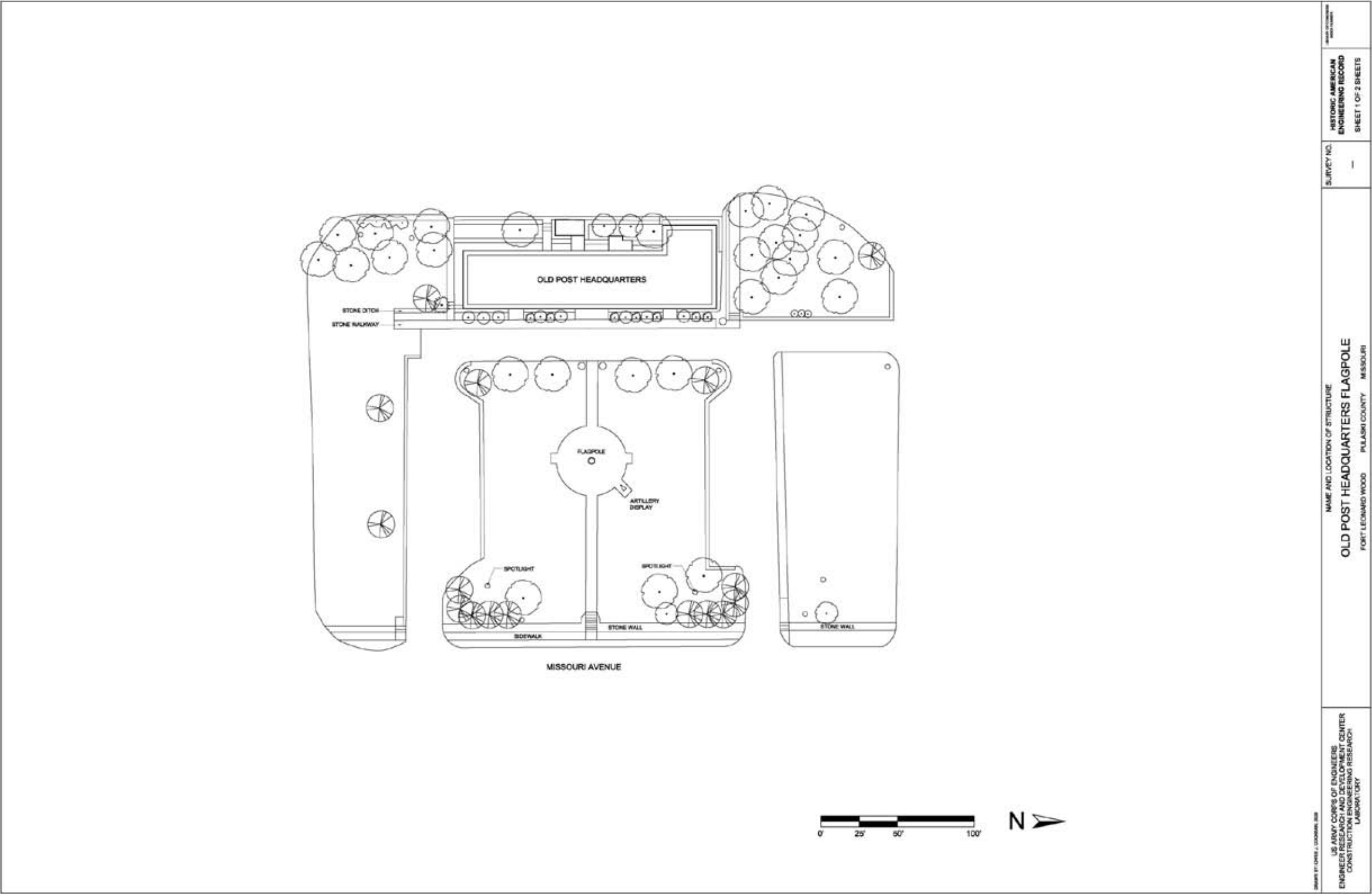


Figure 43. Plan view of flagpole in front of Old Post Headquarters.



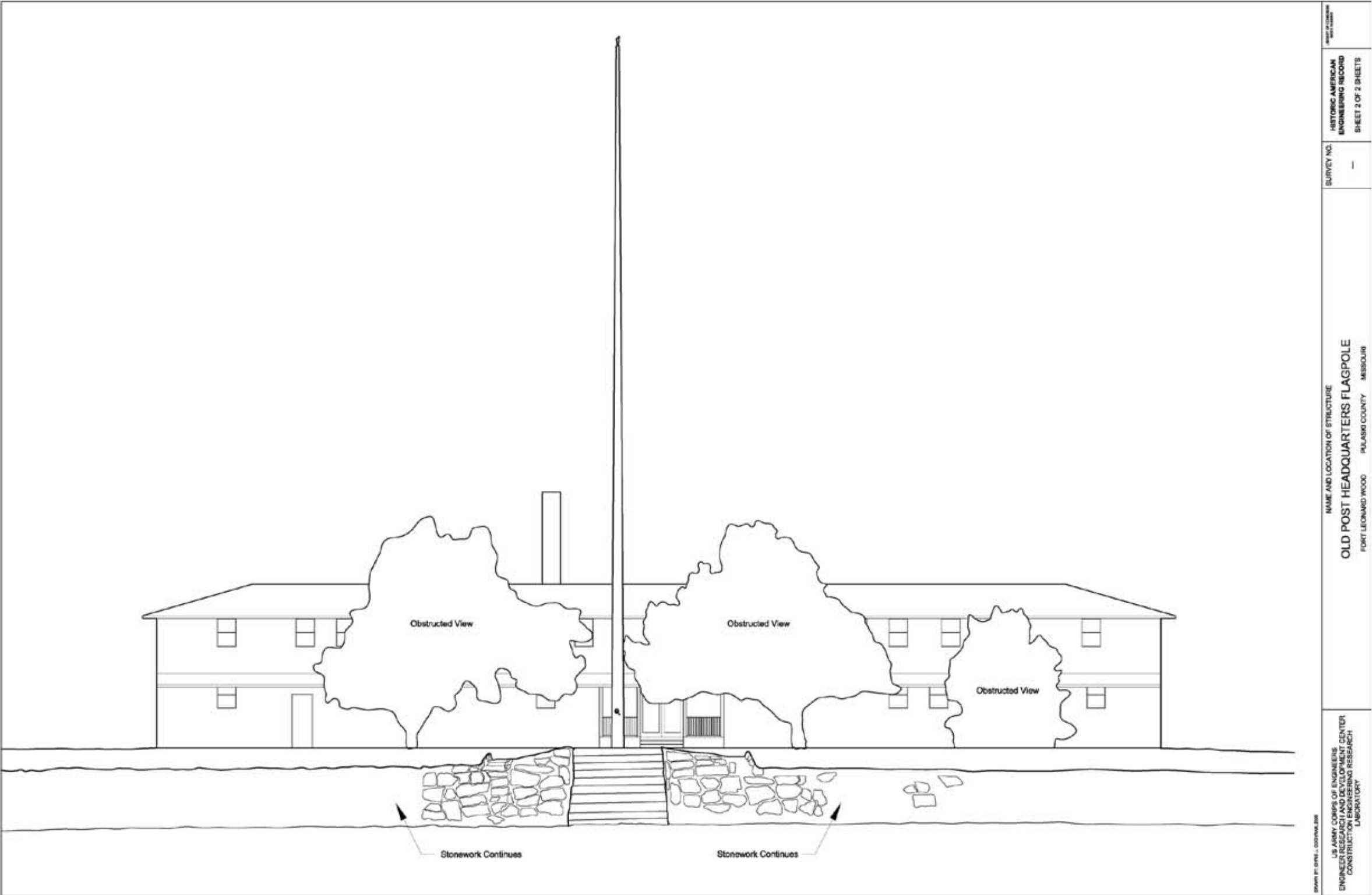


Figure 44. Elevation of flagpole in front of Old Post Headquarters.



## Acronyms and Abbreviations

Term	Spellout
ANSI	American National Standards Institute
CERL	Construction Engineering Research Laboratory
DPW	Directorate of Public Works
ERDC	Engineer Research and Development Center
FBI	Federal Bureau of Investigation
FLW	Fort Leonard Wood
HABS	Historic American Buildings Survey
MIPR	Military Interdepartmental Purchase Request
NSN	National Supply Number
OMB	Office of Management and Budget
POW	prisoner of war
SAR	same as report
SR	Special Report
UPH	Unaccompanied Personnel Housing
US	United States
USACS	US Army Chemical School
USAES	US Army Engineer School
USAMPS	US Army Military Police School
USGS	US Geological Survey
WWII	World War II
YMCA	Young Men's Christian Association



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				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT	
6. AUTHOR(S) Chris J. Cochran and Adam Smith				5d. PROJECT NUMBER MIPR	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER MIPR9LDATP3035	
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9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Fort Leonard Wood Bldg 2112, Directorate of Public Works 1334 First Street Fort Leonard Wood, MO 65473-8944				10. SPONSOR/MONITOR'S ACRONYM(S)  ATZT-DPW-EE	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
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14. ABSTRACT The culvert at the intersection of North Dakota Avenue and Illinois Avenue is part of a historic district of stonework that was constructed by German Prisoners of War during World War II. The district was determined eligible for the National Register of Historic Places in 2006. Reconstruction of the intersection requires the demolition of the culvert stonework. This report documents the culvert in a similar style to the Historic American Engineering Record standard. In addition, this report also documents the flagpole constructed in front of the original Post Headquarters in 1941. This report satisfies Section 110 of the National Historic Preservation Act of 1966 as amended and will help Fort Leonard Wood in mitigation of these two historic resources.					
15. SUBJECT TERMS Fort Leonard Wood, MO, FLW, POW, stonework, culvert, flagpole, historic					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code)
			SAR	84	